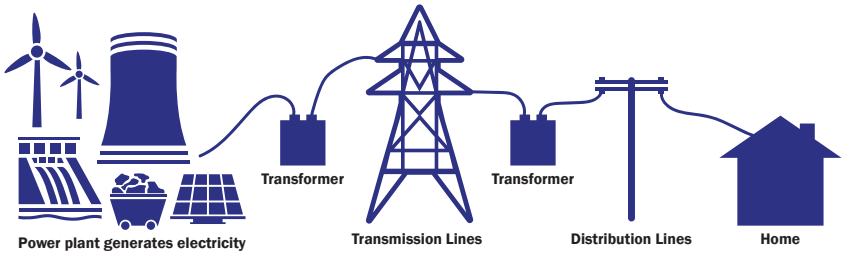
TRIGONOMETRY APPLICATIONS

ALTERNATING CURRENT APPLICATIONS

CONCEPT Alternating current (AC) is a type of electrical current that changes direction periodically. In trigonometry, AC waveforms can be described using sine and cosine functions, which are periodic functions that oscillate between maximum and minimum values.



EXAMPLES

SINE AND COSINE WAVEFORMS: AC waveforms can be described using sine and cosine functions, which are periodic functions that oscillate between maximum and minimum values. These waveforms are used to represent the voltage and current in AC circuits.

AMPLITUDE: The amplitude of an AC waveform is the maximum value of the waveform. In trigonometry, the amplitude is represented by the peak value of the sine or cosine function.

FREQUENCY: The frequency of an AC waveform is the number of cycles per second. In trigonometry, frequency is measured in Hertz (Hz) and is represented by the angular frequency, which is equal to 2π times the frequency.

PHASE ANGLE: The phase angle of an AC waveform is the angular displacement of the waveform from a reference point. In trigonometry, phase angle is measured in radians and is represented by the argument of the complex number that describes the waveform.

COMPLEX NUMBERS AND PHASORS: Complex numbers and phasors are used to represent the amplitude and phase of AC waveforms. In trigonometry, the real part of a complex number represents the amplitude of the waveform, while the imaginary part represents the phase angle.

TRIGONOMETRIC IDENTITIES AND FORMULAS: Trigonometric identities and formulas are used to calculate the amplitude, frequency, and phase angle of AC signals, as well as the power and energy associated with AC circuits.

RESONANCE: Resonance phenomena occur when an AC circuit is tuned to a specific frequency. In this case, trigonometric functions are used to describe the behavior of the circuit, including the amplitude and phase of the voltage and current.